

Notice of Allowability

Application No.

09/977,972

Examiner

Jerry A. Lorengo

Applicant(s)

KAGAWA ET AL.

Art Unit

1734

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendments and arguments filed 12/08/2003 and 12/15/2003.
2. ☒ The allowed claim(s) is/are 1-28.
3. ☒ The drawings filed on 17 January 2001 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

(1)

Allowable Subject Matter

Claims 1-28 have been found to be allowable over the prior art of record.

(2)

The following is an examiner's statement of reasons for allowance:

Methods for the formation of Piezoelectric film type actuators, such as taught by U.S. Patent Nos. 6,347,862 to Kanno et al. and 6,013,970 to Nishiwaki et al., are known in the art. Kanno et al., for example, disclose one such method comprising the steps of: Providing an intermediate transfer member; forming a piezoelectric film assembly on the intermediate member; forming a vibration (oscillating) plate on the piezoelectric film assembly; providing a liquid discharge assembly having compression chambers and ink chambers formed therein; bonding the piezoelectric film assembly and vibration plate carried on the intermediate transfer member to the liquid discharge assembly; and peeling off the intermediate transfer member from the piezoelectric film assembly. Although Ichikawa et al. disclose similar methodologies for the formation of semiconductor devices, including the use of a porous peeling layer disposed between the temporary substrate and the semiconductor device layer formed thereon, none of the prior art of record specifically teach or suggest the method set forth in applicant claims 1 and 15 wherein the porous peeling layer and piezoelectric layers are formed on the temporary substrate as precursors which are fired to form the functional layers prior to transfer to a second substrate.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

(3)

Response to Amendments and Arguments

The substitute specification filed December 15, 2003 is approved and has been entered. The amendments and arguments filed December 8, 2003, is acknowledged. In response to the thereto, claims 1-28 have been passed to issue as set forth and explained in sections (1) and (2), above. This action is in specific response to amendments to applicant claims 1, 12, 15 and 26

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wherein the invention has been further defined to require the formation of the porous and piezoelectric layers by the coating of precursors on the temporary substrate followed by firing and transfer bonding of the piezoelectric layer to the second substrate.

(4)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerry A. Lorengo whose telephone number is (571) 272-1233. The examiner can normally be reached on Monday through Friday, 8:30 A.M. to 5:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

J.A. Lorengo, Primary Examiner

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February 27, 2004

**J.A. LORENGO
PRIMARY EXAMINER**